AFCTN Report 94-119

AFCTB-ID 94-122

Technical Raster Transfer Using:

AlliedSignal Technical Services' Data

Supporting:

SA-ALC/TILDM's EDCARS System

(Contract #F41608-91-C-1276)

MIL-STD-1840A

MIL-D-28002A (Raster)

Quick Short Test Report

23 September 1994

Prepared for
Electronic Systems Center
Air Force CALS Program Office
HQ ESC/AV-2
4027 Colonel Glenn Hwy Suite 300
Dayton OH 45431-1672

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Using:
AlliedSignal Aerospace's Data
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MIL-STD-1840A
MIL-R-28002A (Raster)

Quick Short Test Report

23 September 1994

Prepared By
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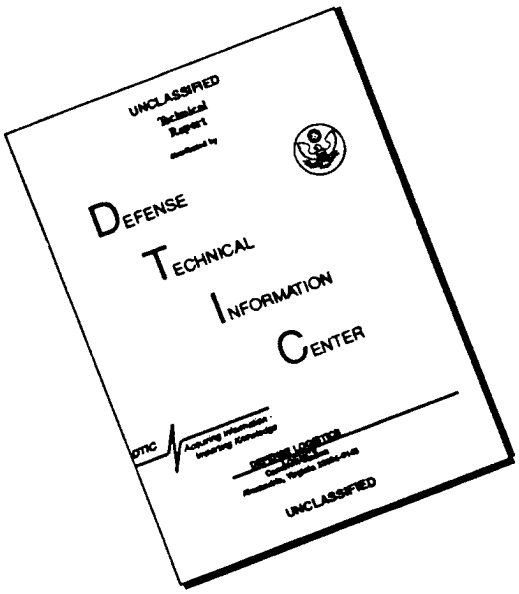

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Air Force CALS Test Bed

Notification of Test Results

23 September 1994

This notice documents the results of an Air Force CALS Test Bed (AFCTB) Quick Short Test Report (QSTR) evaluation of data submitted by:

AlliedSignal Technical Services

Identified as follows:

Title:	**Technical Raster Transfer**
Program:	**EDCARS System**
Program Office:	**SA-ALC/TILDM**
Contract No.:	**F41608-91-C-1276**
QSTR No.:	**AFCTB-ID 94-122**

Received on the following media: **9-Track Tape**

The results of the QSTR evaluation are as follows:

MIL-STD-1840A Standard	**Fail**
MIL-STD-1840A Media Format:	**Fail**
MIL-D-28000A IGES:	**N/A**
MIL-M-28001B SGML:	**N/A**
MIL-R-28002A Raster:	**Pass**
MIL-D-28003 CGM:	**N/A**

Formal results with associated disclaimer are documented and available from the AFCTB.

Air Force CALS Test Bed
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Phone: 513-257-3085 FAX: 513-257-5881

Contents

1. Introduction

1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze AlliedSignal Aerospace Technical Service Corporation's interpretation and use of the CALS standards in transferring technical Raster data. AlliedSignal used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

2. Test Parameters

Test Plan: AFCTB 94-122

Date of Evaluation: 23 September 1994

Evaluator:
George Elwood
Air Force CALS Test Bed
DET 2 HQ ESC/AV-2P
4027 Colonel Glenn Hwy
Suite 300
Dayton OH 45431-1672

Data Originator:
AlliedSignal Technical Services Corp.
Harry S. Barnes
One Bendix Road
Columbia MD 21045-1897
(410) 964-7000

Data Description: Technical Raster Test
1 Document Declaration file
4 Raster files

Data Source System:

1840

HARDWARE
VAX

SOFTWARE
Tapetool 1.2.10 VMS

Raster

HARDWARE
IBM PC

SOFTWARE
AutoCadd DXF to HiJaak GP4

Evaluation Tools Used:

MIL-STD-1840A (TAPE)

SUN 3/280

AFCTN *Tapetool v1.2.10 UNIX*
XSoft *CAPS/CALS v40.4*

MIL-R-28002 (Raster)

HP 735

AFCTN *xrastb.hp*
Carberry *CADLeaf Plus v4.1*
InterCAP *X-Change v7.82*

SGI Indigo2

IGES Data Analysis (IDA) *CALSView*

SUN SparcStation 2

AFCTN *validg4*
AFCTN *xrastb.sun4*
IDA *IGESView v3.0*

PC 486

IDA *IGESView Windows*
IDA *CALSView Windows*
Inset Systems *HiJaak Pro*
Expert Graphics *RxHighlight v1.0*

Standards Tested:

MIL-STD-1840A
MIL-R-28002A

3. 1840A Analysis

3.1 External Packaging

The tape arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a box in accordance with ASTM D 3951. The exterior of the box was marked with a magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was enclosed in barrier sheet material as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel showed the label indicating the recording density, as required by MIL-STD-1840A, para. 5.3.1. Enclosed in the box was a packing list showing all files recorded on the tape.

3.2 Transmission Envelope

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

3.2.1 Tape Formats

The tape was run through the AFCTN *Tapetool v1.2.10* utility. No errors were encountered while evaluating the contents of the tape labels.

The tape was read using XSoft's *CAPS read1840A* utility without any reported errors.

The physical structure of the tape meets the requirements defined in ANSI X3.27 and MIL-STD-1840A.

3.2.2 Declaration and Header Fields

No errors were found in the Document Declaration file. No errors were reported in the data file headers. The submitted files were reported to be a sample for an EDCARS system. A visual check of the Raster file headers showed that the srcdocid was incorrect. This record contained additional

information. The typical EDCARS srcdocid has several spaces followed by number and characters. The AFCTB tapetool utility will report errors because MIL-STD-1840A permits only one space between the colon and the start of valid information. The space character is a valid character and is permitted by MIL-STD-1840A. Shown below is the srcdocid record for file D001R001. Note the two "srcdocid" references in the record.

```
srcdocid: SRCDOCID :  8231872000000000068480D                00010001UMBDHN
A 001
```

While the Raster header files report no errors, the duplicate srcdocid reference are incorrect and the data does not meet the requirements defined in MIL-STD-1840A and also fail to meet the requirements for an EDCARS submission.

4. IGES Analysis

No Initial Graphics Exchange Specification (IGES) files were included in this evaluation.

5. SGML Analysis

No Standard Generalized Markup Language (SGML) files were included in this evaluation.

6. Raster Analysis

The tape contained four Raster files. All files were evaluated using the AFCTN *validg4* utility. This program reported that all four files meet the CALS MIL-R-28002A specification.

The files were read into the AFCTN *xrastb.sun4* viewing utility. No problems were noted with the exception of visual presentation. The small text on the image did not appear to be readable. The quality of the image did not appear to match reported 300dpi scanned density.

The AFCTB has several tools for viewing Raster files. These tools are not used to generate a pass/fail but to report how commercially available software can handle the files. Many of these products are used in the development of technical publications and are good indicators of usability. The use of these products is not an endorsement nor an indication of CALS capability. All operations were performed using the default settings.

The Raster files were read into Carberry's *CADLeaf* software without a reported error. The images were displayed, and an unreadable condition was noted.

The files were read using IDA's *CALSView*. An unreadable condition was noted.

The files were read into IDA's *IGESView* and *IGESView for Windows* without a reported error. All images were printed from this utility. Detailed areas were printed to highlight the unreadable conditions noted in all applications.

The files were read into Inset Systems' *HiJaak Pro* without a reported error. The unreadable condition was again noted.

The files were read using InterCAP's *X-Change*. Files D001R001 and D001R003 were reported as being invalid files. The other two files displayed without a problem. The unreadable condition was again noted.

The Raster files were converted using Rosetta Technologies' *Prepare* without a reported error. The resulting files were read into Rosetta Technologies' *Preview* and displayed. The unreadable condition was noted.

The Raster files were imported into Expert Graphics' *Rx-Highlight* and displayed without a reported error. The unreadable condition was noted.

The Raster files submitted on this tape meet the requirements defined in MIL-R-28002A. Only one application had problems reading some of the files. The quality of the information on the images was marginal to unreadable for the smaller text.

7. CGM Analysis

No Computer Graphics Metafiles (CGMs) were included in this evaluation.

8. Conclusions and Recommendations

In summary, the tape from AlliedSignal Technical Service could be read properly using the AFCTN *Tapetool* Software without any reported errors. The physical structure of the tape was correct and meets the requirements defined in MIL-STD-1840A and ANSI X3.27.

The headers on the Raster files, while not being reported in error, were incorrect. The srcdocid had duplicate entries. The submitted data would not be acceptable to the EDCARS system, and does not meet the MIL-STD-1840A requirements.

The Raster files meet the requirements defined in MIL-R-28002A. The quality of the images was marginal to unreadable for smaller text.

The tape submitted by AlliedSignal does not meet the requirements defined in MIL-STD-1840A.

9. Appendix A - Tapetool Report Logs

9.1 Tape Catalog

CALS Test Network Catalog Evaluation - Version 1.2; Release 10 (C)

Standards referenced:
MIL-STD-1840A (1987) - Automated Interchange of Technical Information
ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes for Information Interchange
ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri Sep 23 09:58:44 1994

MIL-STD-1840A File Catalog

File Set Directory: /cals/u1210/Set049

Page: 1

File Name	File Type	Record Format/ Length	Block Length/Total	Selected/ Extracted
D001	Document Declaration	D/00260	02048/000001	Extracted
D001R001	Raster	F/00128	02048/000010	Extracted
D001R002	Raster	F/00128	02048/000007	Extracted
D001R003	Raster	F/00128	02048/000007	Extracted
D001R004	Raster	F/00128	02048/000008	Extracted

Catalog Process terminated normally.

9.2 Tape Evaluation Log

```
CALS Test Network Tape Evaluation - Version 1.2; Release 10 (C)
  Standards referenced:
    ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes
                        for Information Interchange
    ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Fri Sep 23 09:58:40 1994

ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1CALS01                                                              4

  Label Identifier: VOL1
  Volume Identifier: CALS01
  Volume Accessibility:
  Owner Identifier:
  Label Standard Version: 4

HDR1D001             CALS0100010001000000 94258 00000 000000

  Label Identifier: HDR1
  File Identifier: D001
  File Set Identifier: CALS01
  File Section Number: 0001
  File Sequence Number: 0001
  Generation Number: 0000
  Generation Version Number: 00
  Creation Date:  94258
  Expiration Date:  00000
  File Accessibility:
  Block Count: 000000
  Implementation Identifier:

                          <<<<< PART OF LOG FILE REMOVED HERE >>>>>

############ End of Volume CALS01 ##############
############ End Of Tape File Set ##############

Deallocating /dev/rmt0...

Tape Import Process terminated normally.
```

9.3 Tape File Set Validation Log

```
CALS Test Network File Set Evaluation - Version 1.2; Release 10 (C)

  Standards referenced:
    MIL-STD-1840A (1987) - Automated Interchange of Technical Information

Fri Sep 23 09:58:44 1994
MIL-STD-1840A File Set Evaluation Log
File Set: Set049

Found file: D001
Extracting Document Declaration Header Records...
Evaluating Document Declaration Header Records...

srcsys: atscv1
srcdocid: Test of CALS/EDCARS tape generation.
srcrelid: NONE
chglvl: ORIGINAL
dteisu: 19940915
dstsys: EDCARS System, SA-ALC/TILDM, Kelly AFB, Tx., 78241
dstdocid: Test of CALS/EDCARS tape generation.
dstrelid: NONE
dtetrn: 19940915
dlvacc: F41608-91-C-1276
filcnt: R4
ttlcls: UNCLASSIFIED
doccls: UNCLASSIFIED
doctyp: Product Data
docttl: Chassis, Altered.

Found file: D001R001
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: SRCDOCID :  8231872000000000068480D                00010001UMBDHN
A 001
dstdocid: NONE
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: UNCLASSIFIED
rtype: 1
rorient: 090,270
rpelcnt: 001500,000970
rdensty: 0300
notes: NONE
```

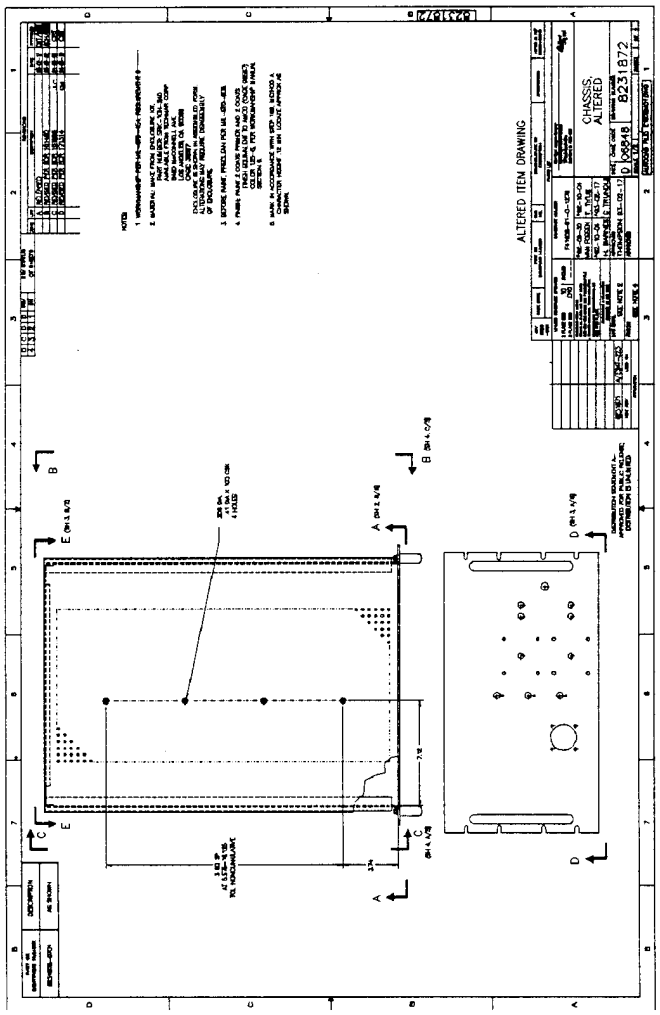
```
Saving Raster Header File: D001R001_HDR
Saving Raster Data File: D001R001_GR4

Found file: D001R002
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: SRCDOCID :  823187200000000068480D                00010001UMBDHN
A 002
dstdocid: NONE
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: UNCLASSIFIED
rtype: 1
rorient: 090,270
rpelcnt: 001500,000970
rdensty: 0300
notes: NONE

Saving Raster Header File: D001R002_HDR
Saving Raster Data File: D001R002_GR4

Found file: D001R003
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: SRCDOCID :  823187200000000068480D                00010001UMBDHN
A 003
dstdocid: NONE
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: UNCLASSIFIED
rtype: 1
rorient: 090,270
rpelcnt: 001500,000970
rdensty: 0300
notes: NONE

Saving Raster Header File: D001R003_HDR
Saving Raster Data File: D001R003_GR4

Found file: D001R004
Extracting Raster Header Records...
Evaluating Raster Header Records...

srcdocid: SRCDOCID :  823187200000000068480D                00010001UMBDHN
```

```
A 004
dstdocid: NONE
txtfilid: NONE
figid: NONE
srcgph: NONE
doccls: UNCLASSIFIED
rtype: 1
rorient: 090,270
rpelcnt: 001500,000970
rdensty: 0300
notes: NONE

Saving Raster Header File: D001R004_HDR
Saving Raster Data File: D001R004_GR4

Evaluating numbering scheme...
No errors were encountered during numbering scheme evaluation.
Numbering scheme evaluation complete.

Checking file count...
No errors were encountered during file count verification.
File Count verification complete.

No errors were encountered in Document D001.

No errors were encountered in this File Set.

MIL-STD-1840A File Set Evaluation Complete.
```

10. Appendix B - Detailed Raster Analysis

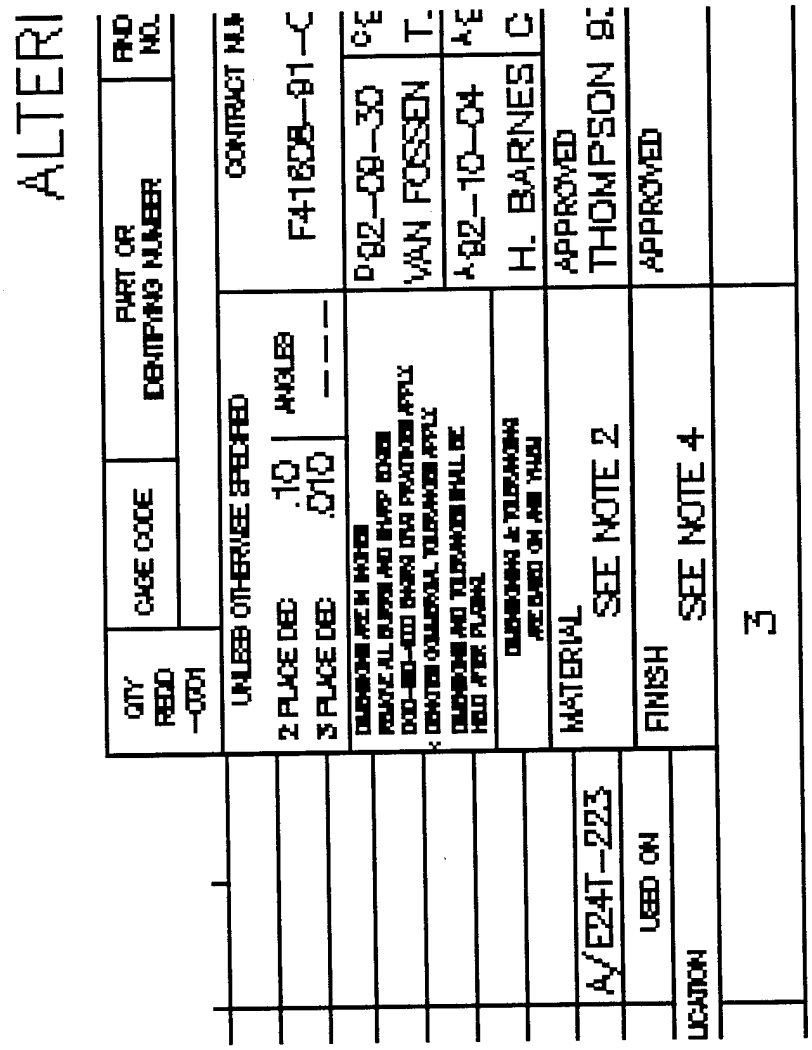
10.1 File D001R001

10.1.1 Output IGESView



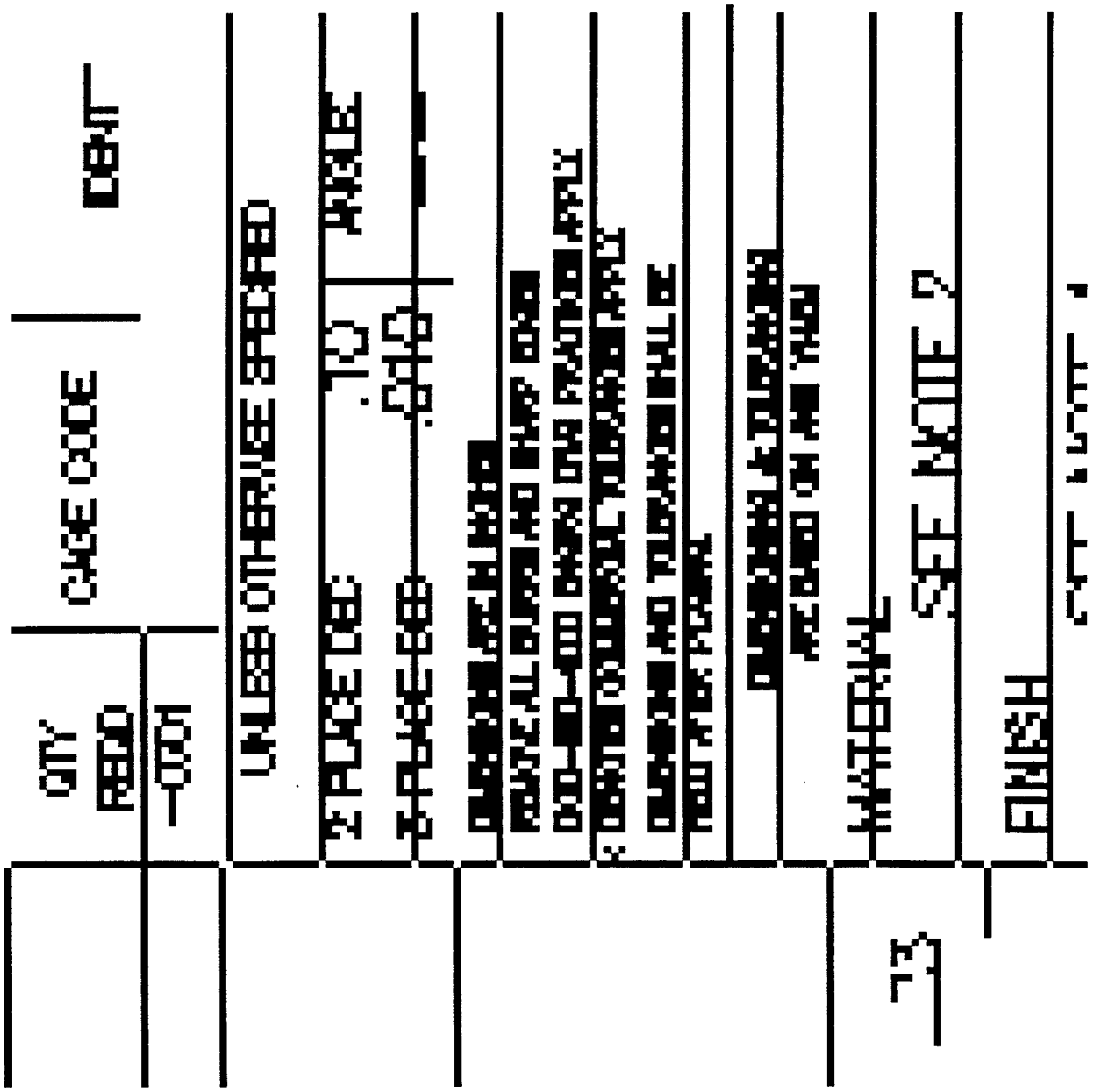
10.2 File D001R001 - Detail

10.2.1 Output IGESView



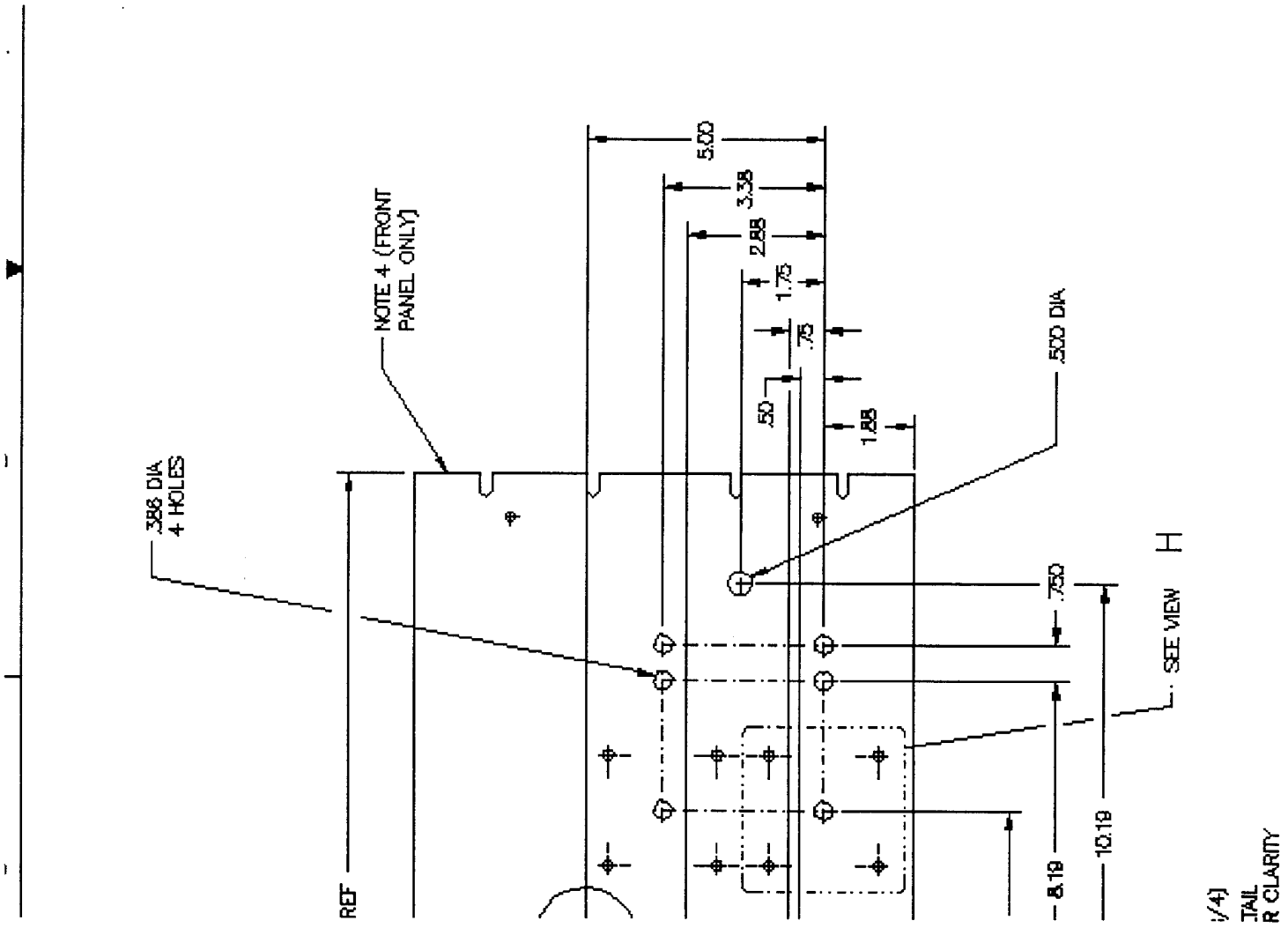
10.3 File D001R001 - Detail

10.3.1 Output IGESView



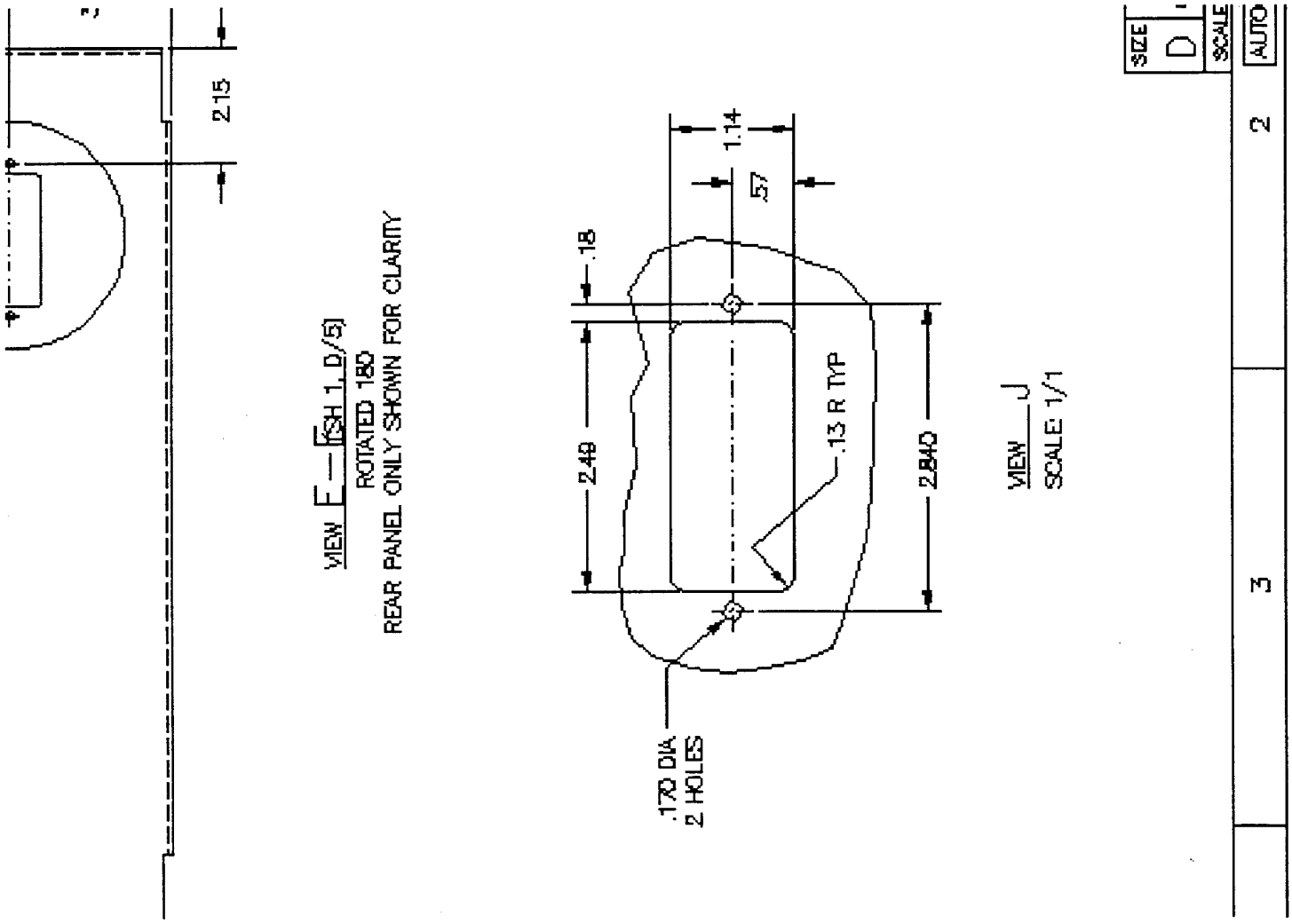
10.4 File D001R002 - Detail

10.4.1 Output IGESView



10.5 File D001R003 - Detail

10.5.1 Output IGESView



10.6 File D001R004 - Detail

10.6.1 Output IGESView